

**REMARKS**

After entry of this amendment, claims 1, 5 and 11-15 are pending of which claims 12-15 are withdrawn. Claims 2-4 and 6-10 have been cancelled without prejudice or disclaimer. The claims have been amended without disclaimer or prejudice and find support *inter alia* in the original claims. No new matter has been added.

**Election/Restriction**

Applicants thank the Examiner for the rejoinder of Groups I and III.

**Rejections under 35 U.S.C. § 103**

***Tracey, Rogers and Phillips References***

The Examiner rejected claims 1-11 under 35 U.S.C. §103 as allegedly obvious over Tracey et al. (U.S. Pat. No. 7,238,715, hereinafter “Tracey”) and further in view of Rogers et al. (U.S. Application No. 2004/0157878 A1, hereinafter “Rogers”) and Phillips et al. (US 6,110,914, hereinafter “Phillips”). Applicants respectfully disagree. However, in order to expedite prosecution, the claims have been amended to recite compounds of formula (I) in which Ar is 2-[<sup>18</sup>F]fluoro-3-pyridyl.

The examiner bears the initial burden of establishing *prima facie* obviousness. See *In re Rijckaert*, 9 F.3d 1531, 1532, 28 USPQ2d 1955, 1956 (Fed. Cir. 1993). To support a *prima facie* conclusion of obviousness, the prior art must disclose or suggest all the limitations of the claimed invention. See *In re Lowry*, 32 F.3d 1579, 1582, 32 USPQ2d 1031, 1034 (Fed. Cir. 1994).

The Office Action alleges that claim 12 of Tracey teaches a compound within the scope of claim 1 except that it does not have a radiolabeled atom. The Office Action then asserts that the suggestion to modify would come from the presence of natural isotopes and Applicants’ specification disclosing prior use of radioisotopes. The Office Action further cites Rogers as suggesting radiolabeled compounds. The Examiner newly cites Phillips and alleges that the compound in claim 8 of Phillips suggests heteroaryl substitutions. Applicants respectfully disagree for the following reasons.

First, as amended the claims differ from compound 12 of Tracey not just in the presence of a radioisotope but also in the presence of a [<sup>18</sup>F] fluoro-3-pyridyl. Compound 12 of Tracey discloses a phenyl at the position that corresponds to the [<sup>18</sup>F] fluoro-3-pyridyl in the presently claimed compounds. Furthermore, the Patent Office has not shown where Tracey suggests using compound 12 as the lead compound and then further modifying it.

“An obviousness argument based on structural similarity between claimed and prior art compounds ‘clearly depends on a preliminary finding that one of ordinary skill in the art would have selected [the prior art compound] as a lead compound.’” *Proctor & Gamble Co. v. Teva Pharm. USA, Inc.*, 566 F.3d 989, 994 (Fed. Cir. 2009), *citing Takeda Chem. Indus., Ltd. v. Alphapharm Pty., Ltd.*, 492 F.3d 1350, 1359 (Fed. Cir. 2007); *see also Eisai Co. Ltd. v. Dr. Reddy's Labs., Ltd.*, 533 F.3d 1353, 1359 (Fed. Cir. 2008) (stating that "post-KSR, a *prima facie* case of obviousness for a chemical compound still, in general, begins with the reasoned identification of a lead compound" in the prior art). Tracey discloses a large genus of compounds described by formulas I, II, III and IV. Column 8, line 1 through Column 10, line 46. Compound 12 is not within the four main chemical formulae that Tracey lays out (it is improperly dependent from a claim concerning formula (II)). Thus it is not even within the main structural motifs that Tracey teaches as encompassing useful compounds. Furthermore, the Patent Office has not shown where the reference teaches compound 12 as a lead compound. Without evidence suggesting compound 12 is a lead compound, obviousness cannot be predicated solely on structural similarity to it.

The Patent Office refers to claim 8 in Phillips as teaching other heteroaryls, and refers to a particular compound among the 44 compounds in claim 8. Yet this compound differs from the amended claims because it lacks any substituent on the pyridyl moiety, whereas Applicants’ compounds have a [<sup>18</sup>F] substituent at the 2-position of the pyridyl. Furthermore, the Patent Office has not shown where Phillips teaches to identify this one compound as a lead compound to modify out of the very large genus of compounds disclosed in Phillips generally, or even out of the list of 44 compounds in claim 8.

Phillips discloses a very large genus of spiroazabicyclic heterocycles of Formula I, which include compounds comprising a 7, 8, or 9-membered azabicyclo ring, an optionally substituted

5 or 6-membered central ring containing oxygen or sulphur, and an optionally substituted 6-membered aromatic ring containing 0, 1, 2, 3 or 4 nitrogens. In view of this very large genus and the failure of the Patent Office to identify the cited compound as being a lead compound from Phillips, the obviousness rejection should be reconsidered and withdrawn.

The Office Action also cites Rogers in support of this rejection. Yet Applicants understand the rejection to rely on Rogers only for general teachings of radiolabeled azobicyclo compounds and do not see a suggestion in the Office Action that any structure or teaching in Rogers is relied upon as suggesting the structures of the present claims. Accordingly, Rogers does not supply the missing suggestion to identify as lead compounds either of the two compounds the Patent Office identified in Tracey and Phillips as structurally similar to the claimed compounds, and, therefore, Rogers does not provide the missing teaching. Accordingly, withdrawal of the obviousness rejection over these references is urged.

*Pomper reference*

Claims 1-11 are rejected under 35 U.S.C. §103 as allegedly obvious over Pomper et al. (WO 2005000250, hereafter “Pomper”). The Office Action alleges that Pomper discloses a genus with species that would fall within the scope of the present claims. The Patent Office also refers to claim 16, which recites a small genus in which one of the compounds has a structure that contains a 2-<sup>18</sup>F-fluoro-phenyl at the position corresponding to the [<sup>18</sup>F] fluoro-3-pyridyl of the presently amended claims. The Examiner asserts that given the teachings of Pomper, it would have been *prima facie* obvious to make the specific disclosed species of the claimed invention. Applicants respectfully disagree.

Again, as the Federal Circuit held in *Proctor & Gamble Co. v. Teva*, obviousness based on structural similarity requires a teaching that the compound to be modified is a lead compound. Here, the Patent Office has relied on the disclosure in Pomper of a large genus. Without more, this does not render obvious a species within it. The Patent Office has also referred to claim 16. However, this is also a genus, albeit a small one, and there has been no showing to select one of the compounds within the genus as a lead candidate for further modification. The compounds of the claims as presently amended differ from the compounds of claim 16 at least by the presence

of a pyridyl ring rather than a phenyl ring.

Accordingly, the obviousness rejection over Pomper cannot stand in view of the claim amendments and the failure to show where the cited references suggest that the relied upon compounds are lead compounds.

Reconsideration and withdrawal of the rejection is urged.

**Double Patenting**

The Examiner provisionally rejected claims 1-11 on the ground of nonstatutory obviousness double patenting over claims 12 and 19 of Application No. 12/321,951. As stated in the previous response, because this is a provisional double patenting rejection, Applicants will further respond as necessary once the claims are otherwise found allowable.

**CONCLUSION**

In view of the above remarks and amendments, Applicants respectfully request withdrawal of the rejections and allowance of the claims. If any outstanding issues remain, the Examiner is invited to telephone the undersigned at the number given below.

This response is filed within the three-month period for response from the mailing of the Office Communication. No fee is believed due. However, if a fee is due, please charge our Deposit Account No. 03-2775, under Order No. 15652-04303-US from which the undersigned is authorized to draw.

Respectfully submitted,

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